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TWO NEW SPECIES OF *HYPOLEPIS* (DENNSTAEDTIACEAE: PTERIDOPHYTA) FROM MOUNT RORAIMA REGION (N SOUTH AMERICA) AND A REVISED KEY FOR THE GUIANAN SPECIES

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Keywords: Dennstaedtiaceae, French Guiana, Guyana, *Hypolepis,* Pteridophyta, Roraima, South America, Suriname.

ABSTRACT

Two new endemic species of *Hypolepis* are described from the Mount Roraima region, in northern South America: *Hypolepis trinationalis* and *Hypolepis krameri*. Also, the list of species occurring in the three Guianas is updated, with a revised key.

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INTRODUCTION

The Mount Roraima region, culminating at 2,810 m elev. at the junction of Brazil, Guyana and Venezuela, is a special geographical area for the genus *Hypolepis* Bernh., concerning the endemism of its species. In this region, there are three, and possibly four (or more) narrowly endemic species - a pattern that is not very common for the genus, in such a relatively small area. Unfortunately, the area has not yet been very well explored, and thus we have little information and only a few collections available of these species.

Cremers & Kramer (1991) made the last taxonomic treatment of the genus in the Guianas. They identified some potentially undescribed endemic species (named as *Hypolepis* sp.1, *Hypolepis* sp.2, and *Hypolepis* sp.3), two of which we describe in this work. We consider *Hypolepis* sp.1 and *Hypolepis* sp.2 (*sensu* Cremers & Kramer *l.c.*) a single taxon, since there are only a few specimens available, and their differences are more related to frond size and degree of dissection of the lamina, which can be understood as individual and/or ecological differences due to age, exposition to shade/sunlight, elevation, humidity, kind of soil, substrate, or other environmental factors. Further collections and more study are needed.

Also, the relationships between *Hypolepis guianensis* Klotzsch and the two new species described here are not clear. *Hypolepis guianensis* seems somewhat intermediate between the other two, especially on the indument (see Table below). It is tempting to speculate that *H. guianensis* may have had a hybrid origin between the two new species, or, the three may be considered a single species, with indument differences related to ecological factors.

In this work we also give re-identifications and a revised key to the *Hypolepis* species occurring in the Guianas.

THE NEW TAXA

Hypolepis trinationalis Schwartsb., **sp. nov.** Type: [GUYANA?], Mt. Roraima, ledge of mountain, crevices between rock, 22/XI/1973, 7,600 ft, *R. Persaud 182* (holotype: K; isotype: BRG). Figs. 1 and 2A.

Differt a Hypolepide guianensi *contexto laminae supra et lamina margine pilis vestitis (vs. glabris).*

Plants epipetric (or also terrestrial?). *Rhizomes* long-creeping, ca. 4 mm diam., with catenate-acicular hairs, yellowish brown, 1–2 mm long, 15–20-celled. *Fronds* erect (to arching?), with continuous growth, 40–45(–200 estimate) cm long; *petioles* 13–20(–80 estimate) cm long, 2–2.5(–7.5) mm diam., dark brown at base, lighter brown at middle and apex, abaxially and adaxially glabrescent, with conspicuous persistent hair bases, non-aculeate; *laminae* ovate to deltate, proximally 2(–3)-pinnate-pinnatisect with penultimate segments pinnatifid, in the middle 1(–2?)-pinnate-bipinnatisect with penultimate segments pinnatifid, distally pinnatisect, 30(–120 estimate) cm long, 18–25(–120) cm wide; *rachises* straight, light brown at base and middle, lighter brown to stramineous at apex, abaxially sparsely pilose, adaxially pilose (especially in the groove) with catenate-acicular hairs, these hyaline with the base and cross-walls reddish, 0.2–0.5(–1) mm long, 4–7(–15)-celled, also with catenate-glandular hairs, these hyaline with the base and cross-walls reddish, 0.2–0.5 mm long, 4–7-celled, non-aculeate; *proximal pinnae* 7–15(–60) cm long, 3–7(–35) cm wide, equilateral; *costae* abaxially sparsely pilose, adaxially pilose, the hairs similar to those of rachises; *costules* abaxially and adaxially sparsely pilose, the hairs similar to the rachises and costae, but the catenate-glandular ones much more conspicuous abaxially and the catenate-acicular much more conspicuous adaxially; *veins* with the same pattern of indument as the costules; *laminar tissue between veins* abaxially with only catenate-glandular hairs, adaxially with only catenate-acicular hairs; *lamina margins* with both catenate-acicular and catenate-glandular hairs; *sori* marginal; *pseudo-indusia* conspicuous, proximally green, distally hyaline, membranaceous in the hyaline part, ciliate, the cilia catenate-acicular, 0.2–0.4 mm long, 4–7(–10)-celled.

Distribution: Known only from the Mount Roraima region.

Etymology: The species name is an allusion to the distribution of the species, which grows in the intersection of Brazil, Venezuela, and Guyana, thus having "three nationalities".

Additional material examined: GUYANA AND NORTHERN BRAZIL. Mount Roraima, Rondon camp, "ledge", ca. 6,900 ft, 01/XII/1927, *G.H.H. Tate 461* (K, NY). GUYANA [or VENEZUELAN RORAIMA?]. Roraima, base of cliff, XII/1884, *E.F. im Thurn 303* (BRG, K).

We have studied only three collections of this new species. Two of them (the type and *Tate 461*) are composed by small complete fronds, and the third one (*im Thurn 303*) by only one big pinna (probably the proximal one). The small specimens were cited by Cremers & Kramer (*l.c.*) as *Hypolepis* sp.2, while the big pinna was cited as *Hypolepis* sp.1. We here consider all of them as only one new species. The type selected here corresponds to *Hypolepis* sp.2, in a strict sense, and also the description measures the range between such small complete fronds. The measurements of *im Thurn 303* (K) are inside brackets (except for the hairs measurements that apply equally to all three materials) and, since the material is incomplete, some estimates were made.

Hypolepis trinationalis can be easily recognized by the lamina copiously furnished with catenate-acicular and catenate-glandular hairs, present on all axis, veins, laminar

tissue between veins and lamina margins. It differs from *H. guianensis* by the laminar tissue between veins adaxially with catenate-acicular hairs (*vs.* glabrous), the lamina margins with catenate-acicular and catenate-glandular hairs (*vs.* glabrous), and the pseudo-indusia with catenate-acicular cilia (*vs.* catenate-glandular cilia).

Another similar species is *Hypolepis viscosa* H. Karst., which also occurs at high elevations (1000-2000 m), has similar blade indument (catenate-acicular and catenate-glandular hairs), lacks aculei on the petioles and rachises and has ciliate pseudo-indusia. *Hypolepis trinationalis* differs from *H. viscosa* by the rachises and costae having much shorter catenate-acicular hairs 0.2–0.5(–1) mm long, 4–7(–15)-celled (*vs.* 1–1.2 mm long, 13–17-celled), costules, veins and laminar margins having both catenate-acicular and catenate-glandular hairs (*vs.* only catenate-glandular hairs), and laminar tissue between veins adaxially having catenate-acicular hairs (*vs.* catenate-glandular hairs).

Hypolepis krameri Schwartsb., Boudrie & Cremers, **sp. nov.** Type: GUYANA [or VENEZUELAN RORAIMA?], Mt. Roraima, base of cliff, X/1884-I/1885, *E.F. im Thurn 161, Mt. Roraima Exped.* (holotype: BM [labeled as "set B"]; isotype: K [labeled as "set A"]). Fig. 2B.

Differt a Hypolepide guianensi *rhachide rugosa (vs. laevi), et pseudo-indusio eglanduloso (vs. glanduloso).*

Plants terrestrial? *Rhizomes* not seen. *Entire fronds* not seen; *petioles* not seen; *laminae* proximally 2-pinnate-pinnatisect with penultimate segments pinnatifid, in the middle pinnate-bipinnatisect with penultimate segments pinnatifid, distally pinnatisect, 65–70 cm long, 30–46 cm wide; *rachises* straight, light golden brown at base and middle, stramineous at apex, abaxially glabrescent or with very scattered hairs, adaxially sparsely pilose with catenate-acicular hairs, these hyaline with the base and cross-walls reddish, 0.2–0.5 mm long, 3–7-celled, also with catenate-glandular hairs, these hyaline with the base and cross-walls reddish, 0.2–0.5 mm long, 3–7-celled, with conspicuous persistent hair bases, sparsely tuberculate, the projections rounded with the apex obtuse, 2–3 mm long, the same color as the rachises; *basal pinnae* 18–23 cm long, 6.5–10 cm wide, slightly inaequilateral, the basiscopic pinnules slightly bigger, equally dissected; *costae* abaxially glabrescent or with very scattered hairs, adaxially sparsely pilose, the hairs similar to those of the rachises; *costules* abaxially with sparse hairs, similar to those of the rachises, adaxially with sparse trichomidia, 0.2–0.3 mm long, 3–6-celled; *veins* abaxially and adaxially glabrous or with very scattered trichomidia; *laminar tissue between veins* abaxially glabrous, adaxially subglabrous, with very scattered trichomidia; *laminar margins* glabrous; *sori* marginal; *pseudo-indusia* conspicuous, entirely hyaline, membranaceous, ciliate, the cilia catenate-acicular, 0.2–0.3 mm long, 4–6-celled.

Distribution: Known only from the type collection, probably endemic to the Mount Roraima region.

Etymology: This species is dedicated to Dr. Prof. K.U. Kramer (†), former professor at the Zürich University (Switzerland), who passed away too early. He had helped us with the determination of large numbers of pteridophytes from French Guiana, and was the co-author of the first fascicles of the 'Flora of the Guianas'.

It is impossible to determinate whether the material seen corresponds to the entire lamina, the apex of the lamina, or only a pinna (if so, probably the proximal one). We have interpreted it as the "entire lamina", and this supposition is reflected in the description above.

Figure 1. *Hypolepis trinationalis:* habit (*Tate 461* [NY]). Drawing by G. Cremers, reproduced from 'Flora of the Guianas' (Koeltz Scientific Books).

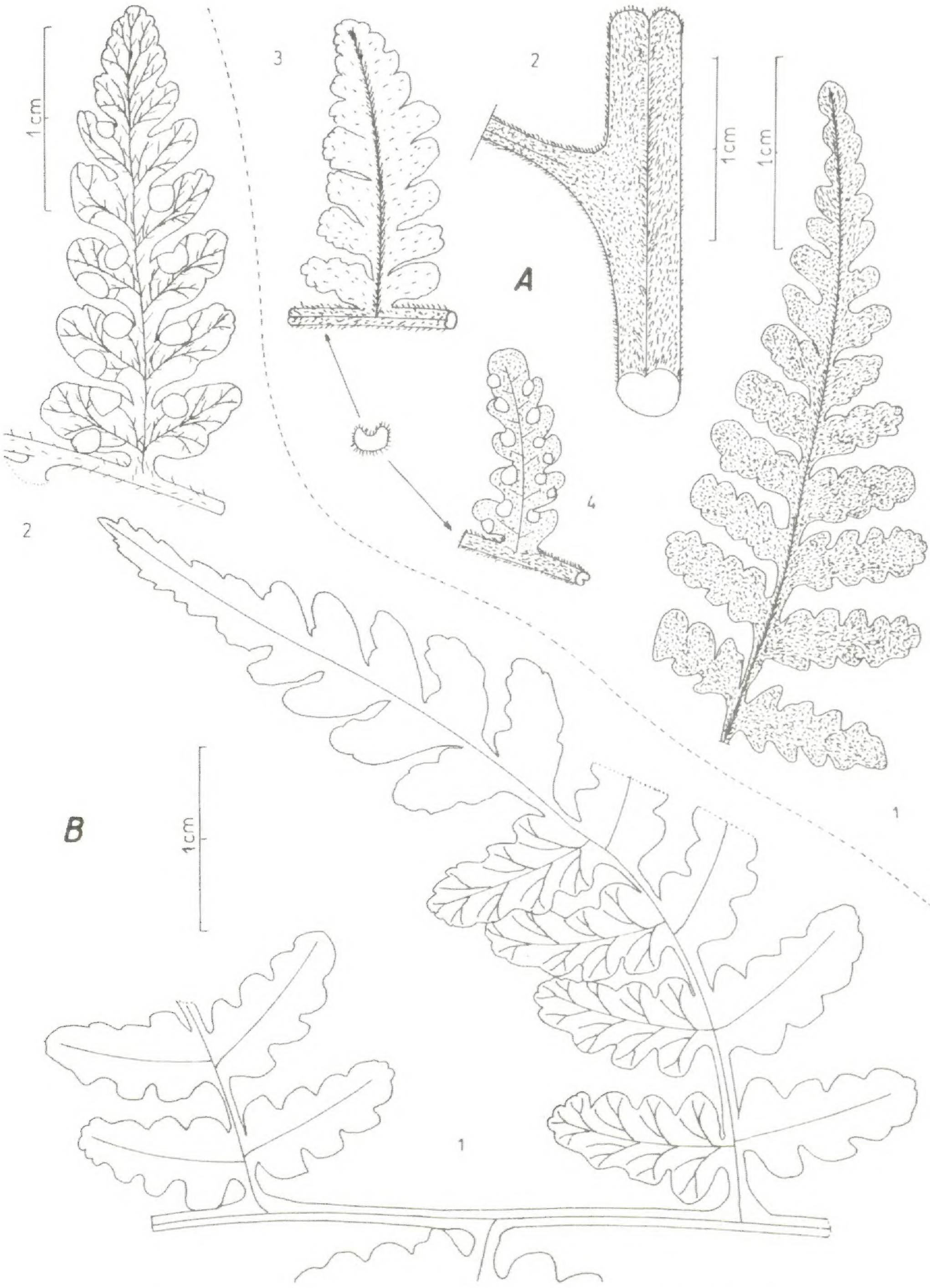

Figure 2A. *Hypolepis trinationalis:* 1. apex of a pinna, 2. rachis, 3. adaxial surface of a penultimate segment, 4. abaxial surface of a penultimate segment and cross section of costa (*im Thurn 303* [BRG]).

Figure 2B. *Hypolepis krameri:* 1. pinnule, 2. abaxial surface of a penultimate segment (*im Thurn 161* [BM]). Drawings by G. Cremers, reproduced from 'Flora of the Guianas' (Koeltz Scientific Books).

Hypolepis krameri can be easily recognized by the obtuse projections present on the petioles (probably) and rachises, by the trichomidia present on costules and laminar tissue between veins adaxially, by the glabrous laminar margins, and by the ciliate pseudo-indusia. This new species was noted as *Hypolepis* sp.3 in Cremers & Kramer (*l.c.*).

The most similar species are *Hypolepis guianensis* and *H. trinationalis,* which can be differentiated by the characteristics shown in the key and in the table below. In addition, *H. krameri* bears trichomidia on the adaxial side of the costules, both sides of the veins and on the adaxial side of the laminar tissue between veins, while Guianan congeners lack such hairs.

Another similar species is *Hypolepis fimbriata* Maxon ex Proctor, apparently endemic to Jamaica (Proctor 1985). However, in this species, the catenate-acicular hairs are up to 2(–3) mm long, while in *H. krameri*, they are 0.2–0.5 mm long.

RE-IDENTIFICATIONS

Apart from considering *Hypolepis* sp. 1 and *Hypolepis* sp. 2 (*sensu* Cremers & Kramer *l.c.*) as a single species, there are two additional re-identifications of material cited by Cremers & Kramer (*l.c.*):

1. What was named as *Hypolepis parallelogramma* (Kunze) C. Presl, represents *H. repens* (L.) C. Presl. These specimens are a bit different from most specimens of *H. repens,* especially regarding the apex of the ultimate segments (oblong, truncate), and the veins more raised with more and longer hairs abaxially. Further studies are needed to decide whether such specimens deserve taxonomic recognition or not. *Hypolepis parallelogramma s.s.* occurs only in the Andean region of Venezuela, Ecuador, Peru and Bolivia.

2. Some specimens named as *Hypolepis hostilis* (Kunze) C. Presl, are better referred to *H. rigescens* (Kunze) T. Moore. Although both species are very similar, their morphological differences are consistent throughout their range, and linked to elevation differences (Schwartsburd & Prado *in prep.*): *H. hostilis* occurs at low elevations of Amazonia, in Bolivia, Peru, Ecuador, Colombia, northern Brazil, probably Venezuela (no material seen), French Guiana, probably Suriname, and Guyana, and also probably in Costa Rica and Panama (*apud* Moran 1995); *H. rigescens* occurs at middle to high elevations, surrounding Amazonia, in Bolivia, probably Peru, Ecuador, Colombia, Costa Rica, probably Panama, Venezuela, Guyana and Suriname, with a disjunct population in northeastern Brazil.

Hypolepis rigescens differs from *H. hostilis* by the laminar tissue between veins abaxially with short catenate-glandular hairs (*vs.* glabrous), bases of petioles generally light to dark brown, rarely black (*vs.* always black), rachises generally sparsely pilose on both sides (*vs.* hairs restricted to the adaxial groove), and margins of the pseudo-indusia dentate and rarely with one or two cilia (*vs.* pseudo-indusia crenate, never ciliate).

Vouchers:

Hypolepis hostilis: FRENCH GUIANA. Piste de Bélizon vers Montagne Tortue (bassin de la Comté), 480 m, 17/XI/1994, *F. Billiet et al.* 6348 (BR-3 sheets, K); Montagnes de la Trinité, Inselberg Nord-Ouest, 200 m, 18/I/1984, *J.-J. de Granville et al. 6138* (CAY, U, Z); Bassin du Haut Inipi, crique Emerillon, au Nord du Massif des Emerillons, 140 m, 24/IX/1980, *J.-J. de Granville 3958* (CAY-on 2 sheets, P, Z). GUYANA. Potaro River,

Table 1. Table comparing the indument of *Hypolepis krameri, H. guianensis* and *H. trinationalis:*

Lamina region/*taxa*	***H. krameri***	***H. guianensis***	***H. trinationalis***
Projections on rachises	present, obtuse at apex	absent	absent
Costules abaxially	with catenate-acicular and catenate-glandular hairs	with catenate-glandular hairs	with catenate-acicular and catenate-glandular (more conspicuous) hairs
Costules adaxially	with trichomidia	with catenate-acicular and catenate-glandular hairs	with catenate-acicular (more conspicuous) and catenate-glandular hairs
Laminar tissue between veins abaxially	glabrous	with catenate-glandular hairs	with catenate-glandular hairs
Laminar tissue between veins adaxially	practically glabrous, but with a few, very scattered trichomidia	glabrous	with catenate-acicular hairs
Lamina margins	glabrous	glabrous	with catenate-acicular and catenate-glandular hairs
Margin of the pseudo-indusia	with catenate-acicular cilia	with catenate-glandular cilia	with catenate-acicular cilia

Sheenabowa, IX-X/1881, *G.S. Jenman 1401* (K); Potaro-Siparuni, Pakaraima Mountains, Ireng River, 685 m, 27/X/1994, *P. Mutchnick et al.* 255 (CAY, US).
Hypolepis rigescens: [GUYANA?]. Roraima, 1863-1864, *C. Appun 1349* (K). SURINAME. Nassau Mountains, Marowijne River, 400-550 m, 07/I/1955, *B. Maguire et al. 39196 A* (HB, K-on 2 sheets, NY, UC, US).

KEY TO SPECIES

1. Petioles and rachises aculeate 2
2. Aculei dark and curved; pinna insertions with a pair of accessory pinnules; costae adaxially with wings decurrent onto the subtending pinna-rachis ....***H. nigrescens*** Hook.
2. Aculei of the same color as the axis and straight; pinna insertions without accessory pinnules; costae without decurrent wings 3
3. Fronds with only catenate-acicular hairs .....***H. repens*** (L.) C. Presl
3. Fronds with both catenate-acicular and catenate-glandular hairs.....4
4. Laminar tissue between veins abaxially glabrous .....***H. hostilis*** (Kunze) C. Presl
4. Laminar tissue between veins abaxially with short catenate-glandular hairs ....***H. rigescens*** (Kunze) T. Moore
1. Petioles and rachises non-aculeate, with or without scattered obtuse projections 5
5. Petioles (probably) and rachises with scattered obtuse projections; costules adaxially with trichomidia; laminar tissue between veins abaxially glabrous ....***H. krameri*** Schwartsb., Boudrie & Cremers
5. Petioles and rachises without projections; costules adaxially with catenate-acicular and catenate-glandular hairs; laminar tissue between veins abaxially with catenate-glandular hairs 6
6. Laminar tissue between veins adaxially with catenate-acicular hairs; laminar margins with catenate-acicular hairs; margins of pseudo-indusia with catenate-acicular cilia..... .....***H. trinationalis*** Schwartsb.
6. Laminar tissue between veins adaxially glabrous; laminar margins glabrous; margins of pseudo-indusia with catenate-glandular cilia .....***H. guianensis*** Klotzsch

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REFERENCES

CREMERS, G. & KRAMER, K.U. 1991. Dennstaedtiaceae. *In:* GÖRTS-VAN RIJN, A.R.A. Flora of the Guianas, ser. B: ferns and fern allies, fasc. 4, pp. 20-81. Koeltz Scientific Books, Koeningstein.

MORAN, R.C. 1995). *Hypolepis* Bernh. *In:* MORAN, R.C. & RIBA, R. (eds.).

Psilotaceae a Salviniaceae. *In:* DAVIDSE, G., SOUSA, M. & KNAPP, S. (eds.). Flora Mesoamericana, v. 1, pp. 153-157. Universidad Nacional Autónoma de México, Ciudad de México.

PROCTOR, G.R. 1985. Ferns of Jamaica. British Museum (Natural History), Henry Ling Ltd., The Dorset Press, Dorchester.

FERNS AND LYCOPHYTES OF CELAQUE NATIONAL PARK, HONDURAS

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Key words: ferns, lycophytes, Celaque, cloud forest, Honduras, Central America, TEFH, KRA.

ABSTRACT

A recent survey of the montane cloud forests of Celaque has added 20 new additions to the fern flora of Celaque National Park, Honduras. A list of all the ferns and lycophytes recorded for the park is provided.

INTRODUCTION

We present the first list of ferns and lycophytes of the Celaque National Park, Honduras. Celaque National Park is located within the Departments of Lempira, Ocotepeque and Copan. The park covers an area of about 266 km^2 between 1000 and 2870 m a.s.l. Topography is rugged, with over two-thirds of the land having inclination greater than 60% and soils being sandy and shallow. Eleven major rivers and a number of streams originate from Celaque. Forest formations vary with elevation: *Pinus-Quercus* forest occurs below 1800 m a.s.l., mixed broad-leaf pine mountain forest between 1800 and 2200 m and cloud forest occurs above 2200 m a.s.l.

This compendium is based on collections made during our recent survey of the montane cloud forests of Celaque and vicinity during March and April 2008. Additionally, we have included other known collections using Tropicos database (Tropicos.org. Missouri Botanical Garden. www.tropicos.org).

Our collections are deposited in TEFH and KRA herbaria. Previous researchers' collections are deposited in MO. Nomenclature generally follows Mickel & Smith (2004), although we take the opportunity to include new combinations in *Phlegmariurus* and *Pleopeltis* that will be made by the indicated authors in the near future.

A total of 166 species in 59 genera are reported here for the park (Table 1). Twenty species are new records. Collections of other collectors are listed only when a given species has not been found by us.

Celaque is the highest peak in Honduras, and biogeographically it is an isolated island with cloud forest. It is important to preserve this environment because of its fern richness (about a quarter of all known Honduran fern and lycophyte species (Nelson Sutherland et al. 1996)), its geographic isolation and potential for fern endemism (we found one undescribed species of *Grammitis*), and because of its role as a source and/or destination area for long-distance dispersal of cloud forest fern species.

Table 1. Ferns and lycophytes of the Celaque National Park.
Species new for the park are in bold face.

Scientific name	Collector	Coll. No.	Date	Herbarium
Adiantum andicola Liebm.	Naks et al.	78	01.04.08	KRA, TEFH
Adiantum concinnum Humb. & Bonpl. ex Willd.	Naks et al.	119	11.04.08	KRA, TEFH
Adiantum feei T. Moore ex Fée	House	882	18.03.91	MO
Adiantum poiretii Wikstr.	Moran	5507	11.11.91	MO
Adiantum tenerum Sw.	Davidse	34589	23.05.91	MO
Alansmia cultrata (Willd.) Moguel & M. Kessler	Naks et al.	60	31.03.08	KRA, TEFH
Alansmia senilis (Fée) Moguel & M. Kessler	Naks et al.	55B	29.03.08	KRA, TEFH
Alansmia smithii (A. Rojas) Moguel & M. Kessler	Davidse	34750A	26.05.91	MO
Anemia hirsuta (L.) Sw.	Nelson	81	07.12.71	MO
Anemia phyllitidis (L.) Sw.	Naks et al.	109	01.04.08	KRA, TEFH
Arachniodes denticulata (Sw.) Ching	Naks et al.	52	29.03.08	KRA, TEFH
Ascogrammitis anfractuosa (Kunze ex Klotzsch) Sundue	Davidse	34606	23.05.91	MO
Asplenium achilleifolium (M. Martens & Galeotti) Liebm.	Naks et al.	155	11.04.08	KRA, TEFH

Asplenium auriculatum Sw.	Naks et al.	153	11.04.08	KRA, TEFH
Asplenium blepharophorum Bertol.	Moran	5536	13.11.91	MO
Asplenium fragrans Sw.	Naks et al.	68	31.03.08	KRA, TEFH
Asplenium harpeodes Kunze	Naks et al.	56	29.03.08	KRA, TEFH
Asplenium miradorense Liebm.	Davidse	34656	24.05.91	MO
Asplenium monanthes L.	Davidse	34655	24.05.91	MO
Asplenium monodon Liebm.	Naks et al.	99	01.04.08	KRA, TEFH
Asplenium polyphyllum Bertol.	Naks et al.	37	26.03.08	KRA, TEFH
Asplenium praemorsum Sw.	Naks et al.	135	11.04.08	KRA, TEFH
Asplenium serra Langsd. & Fisch.	Naks et al.	67	31.03.08	KRA, TEFH
Asplenium sessilifolium Desv.	Moran	5551	14.11.91	MO
Blechnum appendiculatum Willd.	House	921	21.03.91	MO
Blechnum occidentale L.	Naks et al.	93	01.04.08	KRA, TEFH
Blechnum polypodioides Raddi	Moran	5509	11.11.91	MO
Blechnum schiedeanum (Schltdl. ex C. Presl) Hieron.	Naks et al.	66	31.03.08	KRA, TEFH
Blechnum stoloniferum (Mett. ex E. Fourn.) C. Chr.	Moran	5579	16.11.91	MO

Botrychium decompositum M. Martens & Galeotti	Moran	5550	14.11.91	MO
Botrychium virginianum (L.) Sw.	Naks et al.	147	11.04.08	KRA, TEFH
Campyloneurum amphostenon (Kunze ex Klotzsch) Fée	Naks et al.	49	29.03.08	KRA, TEFH
Campyloneurum angustifolium (Sw.) Fée	Naks et al.	80	01.04.08	KRA, TEFH
Campyloneurum tenuipes Maxon	Naks et al.	116	11.04.08	KRA, TEFH
Campyloneurum xalapense Fée	Davidse	34674	24.05.91	MO
Ceradenia jungermannioides (Klotzsch) L.E. Bishop	Davidse	34813	26.05.91	MO
Ceradenia margaritata (A.R. Sm.) L.E. Bishop	Naks et al.	20	26.03.08	KRA, TEFH
Cheilanthes complanata A.R. Sm.	Naks et al.	73	01.04.08	KRA, TEFH
Cheilanthes lendigera (Cav.) Sw.	Davidse	34760	25.05.91	MO
Cibotium regale Verschaff. & Lem.	Naks et al.	110	01.04.08	KRA, TEFH
Cochlidium linearifolium (Desv.) Maxon ex C. Chr.	Naks et al.	134	11.04.08	KRA, TEFH
Cochlidium rostratum (Hook.) Maxon ex C. Chr.	Moran	5605	16.11.91	MO
Ctenitis equestris (Kunze) Ching	Davidse	34699	25.05.91	MO
Culcita coniifolia (Hook.) Maxon	Naks et al.	18	26.03.08	KRA, TEFH
Cyathea divergens Kunze	Naks et al.	151	11.04.08	KRA, TEFH

Cyathea fulva (M. Martens & Galeotti) Fée	Naks et al.	42	26.03.08	KRA, TEFH
Cystopteris fragilis (L.) Bernh.	Naks et al.	158	11.04.08	KRA, TEFH
Dennstaedtia bipinnata (Cav.) Maxon	Naks et al.	144	11.04.08	KRA, TEFH
Dennstaedtia dissecta (Sw.) T. Moore	House	1139	15.11.91	MO
Dennstaedtia globulifera (Poir.) Hieron.	House	903	19.03.91	MO
Dicksonia sellowiana Hook.	Naks et al.	91	01.04.08	KRA, TEFH
Didymoglossum reptans (Sw.) C. Presl	Moran	5554	14.11.91	MO
Diphasiastrum thyoides (Humb. & Bonpl. ex Willd.) Holub	Naks et al.	128	11.04.08	KRA, TEFH
Diplazium cristatum (Desr.) Alston	Naks et al.	139	11.04.08	KRA, TEFH
Diplazium diplazioides (Klotzsch & H. Karst.) Alston	Moran	5563	14.11.91	MO
Diplazium donnell-smithii Christ	House	926	21.03.91	MO
Diplazium drepanolobium A.R. Sm.	Moran	5530	13.11.91	MO
Diplazium franconis Liebm.	Naks et al.	146	11.04.08	KRA, TEFH
Diplazium lindbergii (Mett.) Christ	Naks et al.	145	11.04.08	KRA, TEFH
Diplazium lonchophyllum Kunze	House	920	21.03.91	MO
Diplazium striatum (L.) C. Presl	House	1100	13.11.91	MO

Diplazium werckleanum Christ	House	960	24.05.91	MO
***Diplopterygium bancroftii* (Hook.) A.R. Sm.**	Naks et al.	130	11.04.08	KRA, TEFH
Dryopteris nubigena Maxon & C.V. Morton	Moran	5597	16.11.91	MO
Dryopteris patula (Sw.) Underw.	House	1118	14.11.91	MO
Dryopteris wallichiana (Spreng.) Hyl.	Naks et al.	16	26.03.08	KRA, TEFH
Elaphoglossum andersonii Mickel	Davidse	34653	24.05.91	MO
Elaphoglossum ellipticifolium A. Rojas	Chorley	319	19.09.91	MO
Elaphoglossum erinaceum (Fée) T. Moore	Naks et al.	76	01.04.08	KRA, TEFH
Elaphoglossum glaucum T. Moore	Naks et al.	28	26.03.08	KRA, TEFH
Elaphoglossum lanceum Mickel	Naks et al.	14	26.03.08	KRA, TEFH
Elaphoglossum muscosum (Sw.) T. Moore	Moran	5540	14.11.91	MO
Elaphoglossum paleaceum (Hook. & Grev.) Sledge	Naks et al.	29	26.03.08	KRA, TEFH
Elaphoglossum peltatum (Sw.) Urb.	Moran	5556	14.11.91	MO
Elaphoglossum petiolatum (Sw.) Urb.	Moran	5545	14.11.91	MO
Elaphoglossum pilosius Mickel	Naks et al.	19	26.03.08	KRA, TEFH
***Elaphoglossum sartorii* (Liebm.) Mickel**	Naks et al.	13	26.03.08	KRA, TEFH

Elaphoglossum setigerum (Sodiro) Diels	Naks et al.	71	01.04.08	KRA, TEFH
Elaphoglossum squamipes (Hook.) T. Moore	Naks et al.	10	26.03.08	KRA, TEFH
Elaphoglossum squarrosum (Klotzsch) T. Moore	Moran	5571	16.11.91	MO
***Equisetum myriochaetum* Schltdl. & Cham.**	Naks et al.	97	01.04.08	KRA, TEFH
Eriosorus flexuosus (Kunth) Copel.	Naks et al.	15	26.03.08	KRA, TEFH
Eriosorus hirtus (Kunth) Copel.	Davidse	34802	26.05.91	MO
Galactodenia delicatula (M. Martens & Galeotti) Sundue & Labiak, in press	Davidse	34668	24.05.91	MO
Hymenophyllum axillare Sw.	Naks et al.	30B	26.03.08	KRA, TEFH
Hymenophyllum crassipetiolatum Stolze	Naks et al.	5B	23.03.08	KRA, TEFH
Hymenophyllum elegans Spreng.	Moran	5590	16.11.91	MO
Hymenophyllum fragile (Hedw.) C.V. Morton	Moran	5628	18.11.91	MO
Hymenophyllum fucoides (Sw.) Sw.	Naks et al.	11	26.03.08	KRA, TEFH
Hymenophyllum polyanthos (Sw.) Sw.	Naks et al.	69	31.03.08	KRA, TEFH
***Hymenophyllum pulchellum* Schltdl. & Cham.**	Naks et al.	2	23.03.08	KRA, TEFH
Hymenophyllum tegularis (Desv.) Proctor & Lourteig	Naks et al.	38	26.03.08	KRA, TEFH
Hymenophyllum trichophyllum Kunth	Moran	5544	14.11.91	MO

***Hymenophyllum tunbrigense* (L.) Sm.**	Naks et al.	23	26.03.08	KRA, TEFH
Lophosoria quadripinnata (J.F. Gmel.) C. Chr.	Naks et al.	84	01.04.08	KRA, TEFH
Lycopodium clavatum L.	Naks et al.	26	26.03.08	KRA, TEFH
***Macrothelypteris torresiana* (Gaudich.) Ching**	Naks et al.	95	01.04.08	KRA, TEFH
Marattia excavata Underw.	Naks et al.	133	11.04.08	KRA, TEFH
Marattia interposita Christ	House	902	19.03.91	MO
Megalastrum sparsipilosum R.C. Moran & J. Prado	Moran	5527	13.11.91	MO
***Melpomene deltata* (Mickel & Beitel) A.R. Sm. & R.C. Moran**	Naks et al.	20B	26.03.08	KRA, TEFH
Melpomene firma (J. Sm.) A.R. Sm. & R.C. Moran	Davidse	34552	23.05.91	MO
Melpomene moniliformis (Lag. ex Sw.) A.R. Sm. & R.C. Moran	Naks et al.	4	23.03.08	KRA, TEFH
Melpomene xiphopteroides (Liebm.) A.R. Sm. & R.C. Moran	Moran	5634	18.11.91	MO
Moranopteris basiattenuata (Jenman) R. Y. Hirai & J. Prado	Naks et al.	12	26.03.08	KRA, TEFH
***Niphidium crassifolium* (L.) Lellinger**	Naks et al.	96	01.04.08	KRA, TEFH
Oleandra articulata (Sw.) C. Presl	House	1113	14.11.91	MO
Osmunda regalis L.	Naks et al.	106	01.04.08	KRA, TEFH
Pecluma alfredii (Rosenst.) M.G. Price	Naks et al.	100	01.04.08	KRA, TEFH

Phanerophlebia juglandifolia (Humb. & Bonpl. ex Willd.) J. Sm.	House	961	24.05.91	MO
Phlebodium inaequale T. Moore	Naks et al.	81	01.04.08	KRA, TEFH
Phlebodium pseudoaureum (Cav.) Lellinger	Davidse	34630	24.05.91	MO
Phlegmariurus acerosus (Sw.) B. Øllg.	House	1021	07.07.91	MO
Phlegmariurus hartwegianus (Spring) B. Øllg., comb. ined.	Hawkins	60	11.11.91	MO
Phlegmariurus hippurideus (Christ) B. Øllg.	Naks et al.	36	26.03.08	KRA, TEFH
Phlegmariurus mexicanus (Herter) B. Øllg., comb. ined.	Daniel	9880	16.01.01	MO
Phlegmariurus myrsinites (Lam.) B. Øllg.	Davidse	34720	25.05.91	MO
Phlegmariurus pringlei (Underw. & F. E. Lloyd) B. Øllg., comb. ined.	Naks et al.	65	31.03.08	KRA, TEFH
Phlegmariurus subulatus (Desv. ex Poir.) B. Øllg.	Moran	5582	16.11.91	MO
***Pityrogramma calomelanos* (L.) Link**	Naks et al.	108	01.04.08	KRA, TEFH
Pityrogramma tartarea (Cav.) Maxon	Naks et al.	114	01.04.08	KRA, TEFH
Pleopeltis alansmithii (R. C. Moran) A. R. Sm. & Tejero, comb. ined.	Naks et al.	27	26.03.08	KRA, TEFH
Pleopeltis complanata (Weath.) E.G.A. Hooper	House	1208	31.01.92	MO
Pleopeltis crassinervata (Fée) T. Moore	Moran	5517	11.11.91	MO
Pleopeltis lindeniana (Kunze) A. R. Sm. & Tejero, comb. ined.	Moran	5508	11.11.91	MO

Pleopeltis macrocarpa (Bory ex Willd.) Kaulf.	Davidse	34626	24.05.91	MO
***Pleopeltis mexicana* (Fée) Mickel & Beitel**	Naks et al.	74	01.04.08	KRA, TEFH
Pleopeltis plebeia (Schltdl. & Cham.) A. R. Sm. & Tejero, combined.	Naks et al.	138	11.04.08	KRA, TEFH
Pleopeltis polypodioides (L.) E.G. Andrews & Windham	Naks et al.	136	11.04.08	KRA, TEFH
Pleopeltis sanctae-rosae (Maxon) A. R. Sm. & Tejero, comb. ined.	Davidse	34542	23.05.91	MO
Polypodium aequale Maxon	Moran	5587	16.11.91	MO
Polypodium conterminans Liebm.	Moran	5549	14.11.91	MO
Polypodium fissidens Maxon	Moran	5574	16.11.91	MO
Polypodium fraternum Schltdl. & Cham.	Moran	5514	11.11.91	MO
Polypodium hartwegianum Hook.	Naks et al.	63	31.03.08	KRA, TEFH
Polypodium muenchii (Christ) A. R. Sm.	Naks et al.	22	26.03.08	KRA, TEFH
Polypodium plesiosorum Kunze	Moran	5518	11.11.91	MO
Polypodium subpetiolatum Hook.	Naks et al.	77	01.04.08	KRA, TEFH
Polystichum erythrosorum A.R. Sm.	Davidse	34776	26.05.91	MO
Polystichum hartwegii (Klotzsch) Hieron.	Naks et al.	53	29.03.08	KRA, TEFH
***Pteridium aquilinum* (L.) Kuhn**	Naks et al.	46	29.03.08	KRA, TEFH

Pteris cretica L.	Moran	5529	13.11.91	MO
Pteris orizabae M. Martens & Galeotti	Moran	5568	14.11.91	MO
Pteris paucinervata Fée	Moran	5561	14.11.91	MO
Pteris quadriaurita Retz.	Naks et al.	92	01.04.08	KRA, TEFH
Scoliosorus ensiformis (Hook.) T. Moore	Naks et al.	35	26.03.08	KRA, TEFH
Selaginella bernoullii Hieron.	Moran	5548	14.11.91	MO
Selaginella pallescens (C. Presl) Spring	Naks et al.	101	01.04.08	KRA, TEFH
Selaginella porphyrospora A. Braun	Moran	5522	11.11.91	MO
Selaginella pulcherrima Liebm.	Moran	5523	11.11.91	MO
Selaginella silvestris Aspl.	Naks et al.	3	23.03.08	KRA, TEFH
Serpocaulon triseriale (Sw.) A.R. Sm.	House	1212	31.01.92	MO
Stenogrammitis myosuroides (Sw.) Labiak	Naks et al.	34	26.03.08	KRA, TEFH
Stenogrammitis prionodes (Mickel & Beitel) Labiak	Naks et al.	34B	26.03.08	KRA, TEFH
***Sticherus fulvus* (Desv.) Ching**	Naks et al.	113	01.04.08	KRA, TEFH
Sticherus underwoodianus (Maxon) Nakai	Naks et al.	43B	29.03.08	KRA, TEFH
Terpsichore asplenifolia (L.) A.R. Sm.	House	1093	13.11.91	MO

Terpsichore semihirsuta (Klotzsch) A.R. Sm.	Naks et al.	5	23.03.08	KRA, TEFH
Thelypteris hispidula (Deene.) C.F. Reed	Renfrow	12	01.04.89	MO
***Thelypteris patens* (Sw.) Small**	Naks et al.	121	11.04.08	KRA, TEFH
Thelypteris pilosula (Klotzsch & H. Karst. ex Mett.) R.M. Tryon	Naks et al.	98	01.04.08	KRA, TEFH
Thelypteris resinifera (Desv.) Proctor	Nelson	296	07.12.71	MO
Thelypteris rudis (Kunze) Proctor	Naks et al.	47	29.03.08	KRA, TEFH
Vandenboschia radicans (Sw.) Copel.	Naks et al.	148	11.04.08	KRA, TEFH
Vittaria graminifolia Kaulf.	Naks et al.	54	29.03.08	KRA, TEFH
Woodwardia spinulosa M. Martens & Galeotti	Naks et al.	124	11.04.08	KRA, TEFH

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REFERENCES

MICKEL, J.T. & SMITH, A.R. 2004. The Pteridophytes of Mexico. Mem. New York Bot. Gard. **88**: 1-1054.

NELSON SUTHERLAND, C., GAMARRA GAMARRA, R. & FERNANDEZ CASAS, J. 1996. Hondurensis plantarum vascularium catalogus: Pteridophyta. Fontqueria **43**: 1-139.

PTERIS REPTANS (PTERIDACEAE) - A NEW RECORD FOR INDIA

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Key words: *Pteris reptans*, new record, India.

ABSTRACT

Pteris reptans T.G.Walker has been collected from the southern part of the Western Ghats as a new record for India. It is described and illustrated.

INTRODUCTION

Pteris is a pantropical genus with about 250 species in the world (Tryon *et al.*, 1990), of which 50 species are present in India (Fraser-Jenkins, 2008) though Dixit (1984) had reported 48 species. Most of the *Pteris* species in India are present in the Western Ghats and Himalayan region. Manickam & Irudayaraj (1992) reported 15 species of *Pteris* from the Western Ghats. Subsequent additions have been made by several different authors and after revision Fraser-Jenkins (2008 and pers. comm. 2010) now accepts 23 species in South India. Several additions are of species originally described by Walker (1960) in the *Pteris quadriaurita* Retz. *s.l.* complex from Sri Lanka. Thus Nair & Ghosh (1974) reported *Pteris confusa* T.G.Walker, *P. gongalensis* T.G.Walker (now revised by Fraser-Jenkins to be a synonym of *P. arisanensis* Tagawa, Fraser-Jenkins, Sreenivas & Madhusoodanan in prep.), *P. praetermissa* T.G.Walker (also reported from S. India by Walker), *P. quadriaurita etc.* of this alliance, but did not record *P. reptans* T.G.Walker. During a field-collection trip to Shendurney Wild Life Sanctuary, situated in Kollam District in the southern Western Ghats of Kerala, we collected an interesting *Pteris* with a creeping rhizome, among other distinguishing characters, which was later identified as *P. reptans*, discovered for the first time in India, and previously known only from Sri Lanka. We provide a detailed description, illustrations, and other relevant details of this species.

P. reptans T.G. Walker, *Kew Bull.* 14: 325 *et t.* 1960.

Holotype: Haputale Reserve forest, Sri Lanka, *T.G. Walker* T607, 25 Feb. 1954 (BM, digital image!).

New collection: Shendurney Wildlife Sanctuary, near Thenmala, Kollam District, Kerala state, India, *V.K. Sreenivas* 124069, 11 Nov. 2009 (CALI).

Habitat: Growing along the banks of a forest stream, mainly in shady places at c. 400 m. alt.

Distribution: a very rare species in India, its total world range limited to Sri Lanka and South India (southern Western Ghats).

Cytology: this species is a sexual diploid ($n = 29$) (from Sri Lanka, Walker, 1962).

A short description and illustration (Figure 1) are provided for easy identification.

DESCRIPTION

Height up to 130 cm. Rhizome long, creeping, 10-11 cm long, 4-6 cm thick, scaly. Scales brown, 2-3 cm long, 0.3-0.4 mm broad at their base, acuminate, linear-

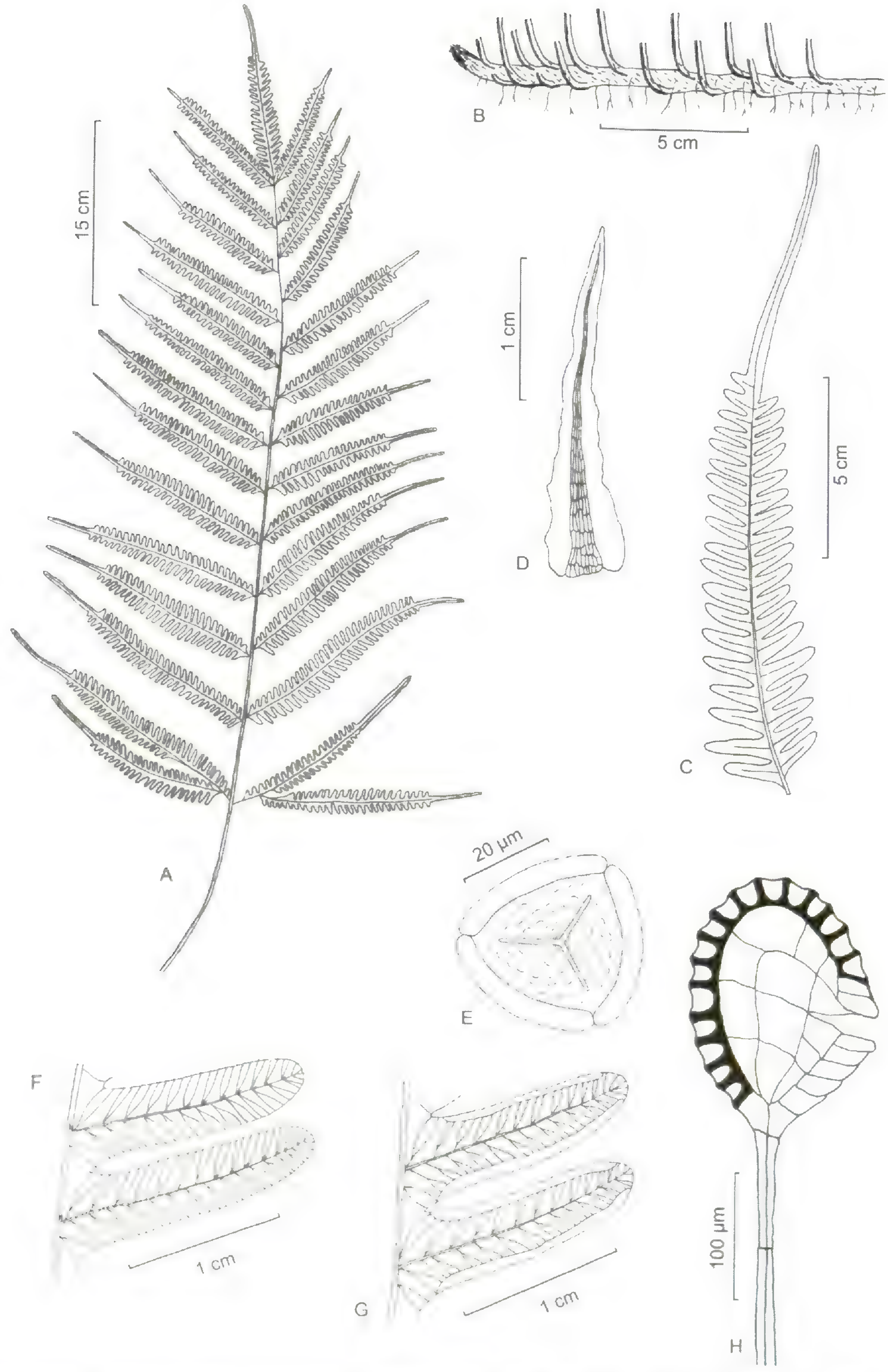

Figure 1. *Pteris reptans*. (A) habit, (B) rhizome, (C) pinna, (D) palea, (E) spore, (F) sterile pinnules, (G) fertile pinnules, (H) sporangium.

Figure 2. *Pteris reptans*. (A) habit, (B) rhizome.

lanceolate, truncate at their base, inner cells thick walled, outer cells thin walled with multicellular projections. Fronds bipinnate, 50-70 cm long x 25-30 cm broad, mid-green above, pale-green below, lanceolate, subcoriaceous. Stipe 60-70 cm long, 2-4 mm thick, stramineous above and chestnut-brown at the extreme base, grooved throughout, scaly below. Pinnae 12-14 pairs, basal pinna bipartite, lower pairs opposite-subopposite, upper pairs alternate, lanceolate, 15-20 cm long x 2.3-3.5 cm broad, unpaired spines borne along the costa; pinna-apex 6-8 cm long, entire. Pinnules or ultimate segments 21-28 pairs, 1.5-2 cm long x 3-4 mm broad, 1-2 mm apart, oblong, obtuse, entire, non-apicuate, inconspicuous, short spinules borne above on central parts of the costule, base of intersegmental sinus 1 mm away from the costa. Veins free, forking, 14-16 pairs, prominent on both sides. Costa grooved above, raised and polished

Table 1. Comparison of morphological characters. *Pteris reptans* is closely related to *P. praetermissa*, one of the members of the *Pteris quadriaurita* complex.

	P. reptans	***P. praetermissa***
Rhizome	long creeping	erect to suberect
Frond	bipinnate; broadly ovate-lanceolate; subcoriaceous	bipinnate; ovate to broadly ovate; herbaceous
Stipe	60-70 cm long,stramineous above and chestnut-brown below	25-50 cm long, stramineous above and chestnut-brown below, but usually becoming all dark-brown to blackish
Pinnae	12-14 pairs;opposite-subopposite in lower pairs, distinctly alternate in upper pairs; lanceolate; short spines on costa	4-5 (+) pairs, subopposite; lanceolate;long spines on costa
Pinnules (ultimate segments)	21-28 pairs; sinus-base 1.0 mm from costa; short, inconspicuous spinules on central parts of costule	15-23 pairs; sinus-base less than 1.0 mm from costa (very near to costa); long, prominent spinules along costule, or towards apex
sporangium stalk annulus	globose, 200-250 µm long; 250-300 µm long, 16-17 celled	globose 200-225 µm long, 200-250 µm long, 17-18 celled
Spores	brown; 40-45 µm,trilete-tetrahedral, verrucate	brown; 35-40 µm, trilete-tetrahedral, irregularly rugose

below. Sori brown, 1.2-1.6 cm long, linear, marginal, absent from the segment-apex, base not joined to the adjacent one of the next segment. Indusia false, pale coloured. Sporangia globose, 200-250 µm long. Stalk 250-300 µm long, 2-celled. Annulus 16-17-celled. Paraphyses uniseriate. Spores brown, regularly sized, small, 40-45 µm in long diameter, trilete-tetrahedral, verrucate.

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REFERENCES

DIXIT, R.D. 1984. A Census of the Indian Pteridophytes. 1-177. Botanical Survey of India, Howrah.

FRASER-JENKINS, C.R. 2008. Taxonomic revision of three hundred Indian subcontinental pteridophytes with a revised census-list. 1-679. Bishen Singh Mahendra Pal Singh, Dehra Dun.

MANICKAM, V.S. & IRUDAYARAJ, V. 1992. Pteridophyte Flora of the Western Ghats. 1-653. South India. B.I. Publications, New Delhi.

NAIR, N.C & GHOSH, S.R. 1974. Pteris quadriaurita Retz. and a few related taxa in Kerala state. J. Bombay Nat. Hist. Soc. 73: 438-443.

TRYON, R.M., TRYON, A.F. & KRAMER, K.U. 1990. Pteridaceae. In: Kramer, K.U. & Green, P.S. (eds.), in KUBITSKI, K. (ed.), The Families and Genera of Vascular Plants 1, Pteridophytes and Gymnosperms: 230-256. Springer Verlag, Berlin.

WALKER, T.G. 1960. The *Pteris quadriaurita* complex in Ceylon. Kew Bull. 14: 321-332.

WALKER, T.G. 1962. Cytology and evolution in the fern genus *Pteris* L. Evolution 16: 27-43.

BOOK REVIEW

FERNS OF SOUTHERN AFRICA. A COMPREHENSIVE GUIDE. Crouch, N.R., Klopper, R.R., Burrows, J.E. & Burrows, S.M. 2011. Hardback 776pp. ISBN 978-1-43170-0110. Published by Struik Nature, Cape Town (also available in softback edition, ISBN 978-1-77007-910-6), 216mm x 54mm.

There have been several publications on the Ferns of Southern Africa over recent decades, Jacobsen's *The ferns and fern allies of southern Africa* in 1983, Burrows' *Southern African ferns and fern allies* in 1990, and Roux's *Conspectus of Southern African Pteridophyta* in 2001. John and Sandy Burrows have now joined forces with Neil Crouch and Ronell Klopper for this new publication, written as a field guide. The smaller format - 216mm x 54mm rather than c. 300mm x 215mm of the three earlier works meets this brief. And for the first time all the ferns and lycophytes of the region are illustrated using full colour photographs, with habitat images, whole plants and close-ups, to show species specific characters.

As a field guide, the work begins with an introduction to the fern and its life cycle, the geographical area covered, and notes on the categories of information provided for each species. There are 321 taxa included, from 91 genera and 34 families, with 303 indigenous taxa and 69 endemic to the region. The taxonomy of families and genera reflects recent advances in molecular systematics, and are organised following the classification in Ranker and Haufler (2008), starting with lycophytes and followed by true ferns.

The section 'How to use this book' follows, with clear guidance on information provided at family and taxon level, and extensive coloured diagrammatic illustrations of A – three life forms, B – nine leaf types and C – 10 sporangial positions, before reaching the key itself. The diagnostic key then uses selections from A, B and C in combination to diagnose families. Some families – e.g. with more than one life form – are keyed out in more than one place here, e.g. Marsileaceae. Other combinations of the A,B,C characters identify a vast array of families, and these are then separated on subsets of characters, again with clear, coloured diagrams to explain the differentiating features. This is a very practical approach to the problem of identifying families based on field characters. At family level, the authors then use more traditional dichotomous keys to genera (supplemented by colour images), and to species.

A double spread is devoted to each species, with text on the left hand page, complemented by 4-6 colour photographs on the right hand page showing habitat, a plant portrait, close-ups of cones, fertile spikes, pinnae, sori or stipe bases as appropriate. For a few groups – *Isoetes*, *Ophioglossum*, *Marsilea* - line drawings provide diagnostic features. With the book opened, one can see at a glance all the information needed for identification – the name of the species, synonyms, derivation and short description, notes on similar species and perhaps with a comparative table of characters, as well as notes on ecology and distribution (including a map), supported by the variety of high quality images.

The book is based on extensive fieldwork by the authors, and practically every taxon has been seen and photographed by them in the field. This is reflected in the wealth of information on distribution, habitat, and ecology that is captured in the concise but very informative notes. The fieldwork also resulted in the inclusion of six new taxa published within the work.

Clearly, the authors are keen to encourage the reader to tuck the book into a rucksack and take it into the field, where the clear, accessible information can be compared directly with the plant in the wild. This comprehensive field guide to the ferns of southern Africa is a very welcome addition to the literature on ferns and lycophytes from the region, and with this at hand, the enthusiast should have no difficulty in identifying most of the taxa in the field.

REFERENCES

BURROWS, J.E. 1990. Southern African ferns and fern allies. Frandsen. Pp. xiii, 359.

JACOBSEN, W.B.G. 1983. The ferns and fern allies of southern Africa. Butterworths. Pp. xiv, 542.

RANKER, T.A. & HAUFLER, C.H. (eds). 2008. Biology and evolution of ferns and lycophytes. Cambridge University Press, Cambridge. Pp. 500.

ROUX, J.P. 2001. Conspectus of Southern African Pteridophyta. Southern African Botanical Diversity Network Report No. 13, SABONET, Pretoria. Pp. 224.

M. Gibby

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STEVENSON, D.W. & LOCONTE, H. 1996. Ordinal and familial relationships of pteridophyte genera. In: CAMUS, J.M., GIBBY, M. & JOHNS, R.J. (Eds) Pteridology in perspective, pp. 435-467. Royal Botanic Gardens, Kew.

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